



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,757	02/11/2002	Robert J. Small	M-12412 US	9276

7590 01/15/2003

SKJERVEN MORRILL MacPHERSON LLP  
Three Embarcadero Ctr., 28th Floor  
San Francisco, CA 94111

EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT	PAPER NUMBER
----------	--------------

1755

DATE MAILED: 01/15/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/074,757

Applicant(s)

SMALL ET AL.

Examiner

Michael A Marcheschi

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☒ Claim(s) 6-8, 17-19, 30-32, 35-39, 46, 47, 52 and 53 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1755

Claims 6-8, 17-19, 30-32, 35, 36, 38-39, 46-47 and 52-53 are objected to because of the following informalities:

In claim 6-8, line 1 of each, the term "**present**" should be inserted after "is"

In claim 17-19, line 2 of each, the term "**present**" should be inserted after "are"

In claims 30-32, line 1 of each, the phrase 'where in' should be "**wherein**"

In claim 30-32, line 1 of each, the term "**present**" should be inserted after "is"

Claim 35 should be rewritten (i.e. **The composition...,wherein the composition has a pH of from about 2 to about 11**).

Claim 36 should be rewritten (i.e. **The composition...,wherein the composition has a pH of from about 2 to about 8**).

In claim 38-39, line 1 of each, the term "**being**" should be inserted after "composition".

In claim 46-47, line 1 of each, the term "**being**" should be inserted after "method".

In claim 46-47, line 2 of each, the phrase "at from" should be changed to "**with**".

Claim 52 should be rewritten (i.e. **The substrate...,wherein the substrate surface has from about zero to about 40 percent within wafer nonuniformity**).

Claim 53 should be rewritten (i.e. **The substrate...,wherein the substrate surface has from about zero to about 12 percent within wafer nonuniformity**).

**The above objections are being made in order to make the claims "flow" or "read" better.**

Appropriate corrections are required.

Art Unit: 1755

Claims 37-39 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. These claims do not further define the compositional makeup of the composition, thus they do not further limit the subject matter of claim 1.

Claims 16, 25, 30-32, 37, 42, 45-48 and 50 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16, is indefinite as to the phrase “effective diameter” because the examiner is unclear as to what the term “effective” means when used in the above phrase. Is this the median diameter? The term “effective” should be canceled and the entire claim rewritten in a more concise manner (i.e. **The composition...wherein the at least one abrasive particle has a diameter of from...nanometers**).

Claim 25 is indefinite as to the term “substantially” because the examiner is unclear as to what this means when used in the context of the claim. Is the metal insoluble or not? This term should be canceled.

Claim 30-32 are indefinite because the phrase “the other abrasive” lacks antecedent basis since “other abrasive” has not been **literally** defined in claim 1. These claims should depend on claim 29.

Claim 37 is indefinite because the claim is not drafted in a clear and concise manner, thus rendering the scope of the claim unclear.

Art Unit: 1755

Claims 42 and 45 are indefinite as to phrase "the metal" (line 1 of each) because two metals are recited (one in claim 40 (feature comprising a metal) and one in claim 1 of which claim 40 depends on (catalyst comprising a metal)). In view of this, the instant claims do not recite which metal claims 42 and 45 are referring to. Although it might be apparent that the metal of these claims refers to the feature, the claims must define this. It is therefore suggested that the phrase "metal of the feature" be defined in claims 42 and 45.

Claims 46-47 are indefinite as to the phrase "at from" (line 2 of each) because the use of this phrase does not define the claims in a clear and concise manner.

Claim 48 is indefinite because the claim is not drafted in a clear and concise manner, thus rendering the scope of the claim unclear. This claim should be rewritten (i.e. **The method..., wherein any microscratch produced on the substrate surface during chemical mechanical polishing is less than about 20 Angstroms.**).

Claim 50 is indefinite as to phrase "the metal" (line 2) because two metals are recited (one in claim 49 (feature comprising a metal) and one in claim 1 of which claim 49 depends on (catalyst comprising a metal)). In view of this, the instant claims do not recite which metal claim 50 is referring to. Although it might be apparent that the metal of these claims refers to the feature, the claims must define this. It is therefore suggested that the phrase "metal of the feature" be defined in claim 50.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 1755

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6-11 and 16-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller et al. alone or in view of Shadman et al.

Mueller et al. teach in column 3, lines 4-7, column 5, line 29-column 6, line 45, column 7, lines 1-9, column 7, lines 35-37, column 8, lines 25-50, column 9, line 61-column 10, line 50, and column 11, lines 13-18, a polishing slurry comprising 0.1-20% of an oxidizing agent (hydrogen peroxide), 0.001-25% of an insoluble solid catalyst and 0.1-20% of an abrasive. The composition can also include other additives, such as, stabilizers, in an amount of about 0.001-about 0.2%. The polishing slurry has a pH of between 2-11. The reference states that the solid catalyst includes all solid materials (i.e. oxide, etc.) that meet the definition in column 7, lines 1-4 and defines specific examples. Column 13, line 22 also define this catalyst a "photoactive solid catalyst". The solid catalyst can be chemically or physically associated with the surface of the abrasive as a molecular species (i.e. coating). Column 1, lines 10-20 defines substrates that the polishing composition can be used for. Column 11, lines 13-18 states that the composition can be made using a two-package system, the first package comprises the oxidizing agent and the second package comprises the catalyst. The abrasive can also be present in the second package. Finally, the examples defines pressures used in polishing and the removal rate which met the instant claimed limitations.

Shadman et al. teach in the abstract that copper oxide is as a well known photoactive catalyst.

The primary reference teaches a composition which meets the above claims because column 5, lines 55-58 implies that the catalyst is coated on the abrasive. With respect to the catalyst, column 7, lines 1-7 states that Mn can be used as the catalyst and this is a group 7b metal which is within the scope of the catalyst defined in instant claim 1. It is also the examiners position that the solid catalyst of the reference includes and therefore makes obvious the catalysts of instant claims 20 and 23 because it is the examiners position that these catalyst meet the criteria defined in column 7, lines 1-4 and the reference is not limited to the ones defined therein (non-limiting examples) in the absence of any evidence showing the contrary. To support the examiners position and as an example, the primary reference calls the catalyst a "photoactive catalyst" (column 6, lines 42+) and copper oxide is a known photoactive catalyst, as shown by Shadman et al. In view of this, the claimed specific catalyst(s) is(are) obvious because they are photoactive catalysts. With respect to claims 26-28 (coating coverage), it is the examiner position that since the reference teaches that the abrasive can be coated with the catalyst, this implies the claimed coverage's. In view of this, it is therefore the examiners position that since the reference fails to mention any specific coating coverage (criticality), this (the absence of any such limitation) constitutes a broad teaching of coating coverage's. In view of this, it can be reasonably interpreted that the claimed coating coverage's are encompassed by the broad teachings according to this reference in the absence of any evidence showing the contrary (criticality). With respect to claims 29-32, it is the examiners position that since the reference also implies that the abrasive does not necessarily have a catalyst coating, this reads on a mixture of catalyst coated abrasive particle in combination with uncoated abrasive particles. Claim 41 is obvious in view of the teaching that "the composition can be made using a two package system,

Art Unit: 1755

the first package comprises the oxidizing agent and the second package comprises the catalyst. The abrasive can also be present in the second package.” Finally with respect to the characteristics defined in claims 46-48 and 52-54, it is the examiners position that these characteristics are expected with the use of the reference polishing slurry because said slurry is the same and the same slurry is expected to yield the same polishing characteristics on a substrate.

Claims 3-5 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller et al. alone or in view of Shadman et al. as applied to claim 1 above, and further in view of Beital et al., Fang, Yano et al., JP 10128667 and Wang et al.

Beital et al. teach in claim 6, that ozone and metal salts are known oxidizing agents for CMP slurries.

Fang teaches in column 4, lines 1-13, that hydroxylamine salts and metal salts are known oxidizing agents for CMP slurries.

Yano et al. teach in column 10, line 57-column 11, line 1, that some of the claimed abrasive particles are known abrasive particles to be used in CMP slurries.

JP 10128667 teach in the abstract that polyvinyl alcohol is a known abrasive particle to be used in polishing slurries.

Wang et al. teach in the abstract that ion exchange resins are known abrasive particles to be used in polishing slurries.

It is the examiners position that it would have been obvious to use any of the oxidizers, as shown by Beital et al. and Fang, as the oxidizers in the composition according to Mueller et al.



Art Unit: 1755

because the substitution one known oxidizer for another that is to be used for the same purpose is well within the level of ordinary skill in the art. In addition, it is also the examiners position that it would have been obvious to use any of the abrasive particles, as shown by Yano et al., JP 10128667 and Wang et al., as the abrasive particles in the composition according to Mueller et al. because the substitution one known abrasive particle for another that is to be used for the same purpose is well within the level of ordinary skill in the art.

**In view of the above rejections, no patentable distinction is seen to exist between the references and the claimed invention in the absence of any evidence showing the contrary.**

**Applicants are reminded that "about" permits some tolerance, *In re Ayers*, 154 F 2d 182, 69 USPQ 109.**

**The desired particle size is a function of the application and mere recitation of that size does not represent a patentable distinction over this reference to one of ordinary skill in the art, lacking evidence to the contrary.**

"A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968)". In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

Art Unit: 1755

**"A generic disclosure renders a claimed species prima facie obvious. *Ex parte George* 21 USPQ 2d 1057, 1060 (BPAI 1991); *In re Woodruff* 16 USPQ 2d 1934; *Merk & Co. v. Biocraft Lab. Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1983); *In re Susi* 169 USPQ 423 (CCPA 1971)".**

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976)".

The change in sequence of adding ingredients would have been obvious to one of ordinary skill in the art absent evidence to the contrary. *In re Gibson* 5 USPQ 230.

Applicants use process limitations to define the product and "product-by-process" claims do not patentably distinguish the product even though made by a different process. *In re Thorpe* 227 USPQ 964.

Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder* 173 USPQ 356.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Marcheschi whose telephone number is (703) 308-3815. The examiner can be normally be reached on Monday through Thursday between the hours of 8:30-6:00 and every other Friday between the hours of 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor, Mark L. Bell, can be reached at (703) 308-3823.

Amendments can also be sent by fax to the numbers set forth below:

For after final amendments, the fax number is (703) 872-9311;

For non-final amendments, the fax number is 703 872-9310.

Application/Control Number: 10/074,757

Page 10

Art Unit: 1755

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Michael Marcheschi

Art unit 1755

1/03



MICHAEL MARCHESCHI  
PRIMARY EXAMINER